

CoE 197-S ME 8 Activity 3

1. Getting setup

```
PS C:\WINDOWS\system32> docker pull ubuntu:16.04
16.04: Pulling from library/ubuntu
Digest: sha256:9775877f420d453ef790e6832d77630a49b32a92b7bedf330adf4d8669f6600e
Status: Image is up to date for ubuntu:16.04
docker.io/library/ubuntu:16.04
PS C:\WINDOWS\system32> docker images
REPOSITORY      TAG        IMAGE ID       CREATED        SIZE
delner/ping     latest     e7f82fa5a9c5   12 minutes ago 170MB
ubuntu         16.04     9ff95a467e45   2 weeks ago   135MB
PS C:\WINDOWS\system32> docker rmi e7f
Untagged: delner/ping:latest
Deleted: sha256:e7f82fa5a9c585219be40cecc7b87169009661078120043de124d97e5a6c639d
Deleted: sha256:819f2b04fb7f7129bf590971d6ecfc7036bbce9a6e10c478e6c55397efaf57f9
PS C:\WINDOWS\system32>
```

2. Creating a Dockerfile

```
PS C:\WINDOWS\system32> touch Dockerfile
touch: the term 'touch' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spelling of the name, or if a path was included, verify that the path is correct and try again.
At line:1 char:1
+ touch Dockerfile
+ ~~~~~
+ CategoryInfo          : ObjectNotFound: (touch:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

Dockerfile - Notepad
File Edit Format View Help
FROM ubuntu:16.04
LABEL author="David Elner"

RUN apt-get update

RUN apt-get install -y iputils-ping
```

3. Building the Dockerfile

```
PS E:\> cd "Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images"
PS E:\Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images> docker build -t 'delner/ping'
"docker build" requires exactly 1 argument.
See 'docker build --help'.

Usage:  docker build [OPTIONS] PATH | URL | -

Build an image from a Dockerfile
PS E:\Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images> docker build -t 'delner/ping' .
[+] Building 66.5s (7/7) FINISHED
=> [internal] load build definition from Dockerfile
=> [internal] load .dockerignore
=> [internal] load Dockerfile
=> [internal] load metadata for docker.io/library/ubuntu:16.04
=> [1/1] FROM docker.io/library/ubuntu:16.04
=> [1/1] RUN apt-get update
=> [1/1] RUN apt-get install -y iputils-ping
=> exporting to image
=> exporting layers
=> writing image sha256:2f26cfcde1ee175009140070f034214e3090b114bdc2306f121219db7792
=> naming to docker.io/delner/ping

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS E:\Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images> docker images
REPOSITORY      TAG        IMAGE ID       CREATED        SIZE
delner/ping     latest     2f26cfcde1ee   About a minute ago 170MB
ubuntu         16.04     9ff95a467e45   2 weeks ago   135MB
```

4. Optimizing the Dockerfile

```
ubuntu 16.04 9ff95a467e45 2 weeks ago 135MB
PS E:\Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images> docker build -t 'delner/ping' .
[+] Building 63.1s (6/6) FINISHED
#> [internal] load build definition from Dockerfile
#> => transferring Dockerfile: 180B
#> [internal] load .dockerignore
#> => transferring context: 2B
#> [internal] load metadata for docker.io/library/ubuntu:16.04
#> CACHED [1/2] FROM docker.io/library/ubuntu:16.04
#> 12/11 80M apt-get update -- apt-get install -y iputils-ping -- apt-get clean -- cd /usr/lib/apt/lists -- rm -fr "Release" "Sources" "Packages"
#> exporting to image
#> exporting layers
#> writing image sha256:9b2bb148d3439b2f26cfcde1ee5f70b08a17d0b0c311eb4d81e9f4e6a70417207
#> naming to docker.io/delner/ping

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS E:\Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images> docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
delner/ping latest 9b2bb148d343 6 seconds ago 139MB
<none> <none> 2f26cfcde1ee 5 minutes ago 170MB
ubuntu 16.04 9ff95a467e45 2 weeks ago 135MB
```

5. Other Dockerfile directives

```
PS E:\Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images> docker build -t 'delner/ping' .
[+] Building 68.3s (6/6) FINISHED
#> [internal] load build definition from Dockerfile
#> => transferring Dockerfile: 180B
#> [internal] load .dockerignore
#> => transferring context: 2B
#> [internal] load metadata for docker.io/library/ubuntu:16.04
#> CACHED [1/2] FROM docker.io/library/ubuntu:16.04
#> 12/11 80M apt-get update -- apt-get install -y iputils-ping -- apt-get clean -- cd /usr/lib/apt/lists -- rm -fr "Release" "Sources" "Packages" -- truncate -s 8 /var/lib/apt
#> exporting to image
#> exporting layers
#> writing image sha256:9b2bb148d3439b2f26cfcde1ee5f70b08a17d0b0c311eb4d81e9f4e6a70417207
#> naming to docker.io/delner/ping

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS E:\Janzen Desktop\Third Year Second Sem\CoE 197-S\Week 10\ME8\ME8_Containerization_and_Docker\3-building_images> docker run -it delner/ping
PING google.com (172.217.161.174): 56(84) bytes of data:
64 bytes from 172.217.161.174: icmp_seq=1 ttl=37 time=34.9 ms
64 bytes from 172.217.161.174: icmp_seq=2 ttl=37 time=36.6 ms
64 bytes from 172.217.161.174: icmp_seq=3 ttl=37 time=37.3 ms
64 bytes from 172.217.161.174: icmp_seq=4 ttl=37 time=37.2 ms
64 bytes from 172.217.161.174: icmp_seq=5 ttl=37 time=38.1 ms
^C
--- google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4003ms
rtt min/avg/max/mdev = 34.952/36.870/38.155/1.072 ms
```